Circular Economy for Agriculture in Malaysia

Purpose: Information
Submitted by: Malaysia
CIRCULAR ECONOMY FOR AGRICULTURE IN MALAYSIA

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Circular Agriculture

Agriculture greatly relies on natural resources and cycles as primary inputs for crop and livestock production.

1. ZERO WASTE
   Reusing as much waste streams as possible as farm input.

2. INTEGRATED FARMING
   Combination crops, crop rotation, minimum till and cover cropping. Livestock and crop production are combined to create additional nutrient loops.

3. TECHNOLOGY BASED FARMING
   Effective green inputs, pest and disease control, optimum water input and sustainability of crop yield production.

4. BIO-ENERGY
   Self sustainable farming system in producing energy for farm use form biomass waste.

5. REGENERATIVE FARMING
   Soil improvement, increases biodiversity, enhanced ecosystem service and supporting bio sequestration.
Challenges of Malaysian Agriculture Sector

- In Malaysia, food import bill is more than RM50 billion. In 2018, Malaysia ranked 40th among 113 economies in the Global Food Security Index.

- Need to increase the income for smallholders and farmers and eradicate poverty among the agro based community. Prices of commodities are low, yet essential food items are beyond their reach.

- To date policies formulated have not completely lift this group of people out of poverty. Subsidies do help but are not the answer in the long term.
Circular Economy in Agriculture
MALAYSIA – oil palm

accounts for 11% of the world’s oils and fats production and 27% of export trade of oils and fats to optimise the usage of resources (raw materials) and minimise wastage from production, emissions and energy inefficiency.

optimization of raw materials by continually adding value to its users along the supply chain. 

Theeba Manickam, MARDI
CE in Oil palm plantation (MIDA)

Promoting the utilization of palm biomass into value added products (e.g., advanced biofuels, bio-based chemicals, biopolymers and second generation sugar).

Aims for all mills to have biogas plants and promotes the development of bio-based chemicals and biofuels as a means of turning waste into wealth.

Tax incentives are offered as a stimulus to further drive the uptake by industry players.

Theeba Manickam, MARDI
CE in Palm oil ecosystem

more than 50 companies involved in the processing of palm biomass into value-added products

growing interest in utilising palm fibre as reinforced polymer composites for lowcost construction materials, furniture as well as pulp and paper production

need for better facilities, incorporation of more advanced technologies and substantial investments into the industry to ensure a competitive edge against traditional practices. The Government, together with the private sector, will need to work closely to operate these initiatives on a broader scale to make a difference for the country

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INTEGRATED FARMING SYSTEM for CIRCULAR AGRICULTURE

- Promotion under Ministry of Agriculture to increase farms with integrated system (crops, livestock and agroecological system)
- 5% of farms in Malaysia with integrated farming system
- Farms with myOrganic Certification are mostly adopting this system for much higher farm return and sustainable production
- Circular agriculture is practiced through zero waste management, mixed crop, livestock, on farm input production and agroecological management
- CE in Agriculture via integrated farmingsystem will be further strengthened in the next Malaysia Plan
INTEGRATED ORGANIC FARM MODEL IN MARDI

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Animal feed from crop biomass fresh and waste

Livestock manure waste management into farm input (fertilizer)

Crop production – mixed cropping, ecosystem services, soil improvements and biodiversity

Crop biomass waste as liquid fertilizer and compost

CIRCULAR AGRICULTURE via INTEGRATED FARMING SYSTEM

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ZERO WASTE MANAGEMENT INTO ORGANIC FERTILIZER

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BENEFITS OF CIRCULAR AGRICULTURE THROUGH INTEGRATED FARMING SYSTEM

ENVIRONMENTAL SUSTAINABILITY
- Soil fertility improvement
- Increase biodiversity
- Reduced pesticide and heavy metal contamination

MAXIMISING INCOME
- Reduced cost of production
- Yield of mixed crop
- Generated income from livestock and produced farm inputs

INCREASE CROP YIELD
- Higher soil fertility
- Organic fertilizers
- Lower pest and disease
- Pollinating agents

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Trainings provided to promote circular agriculture
CONCLUSION

Resource usage efficiency and the reuse of consumer products are a way of making agricultural business models more sustainable.

The transition to a circular system requires the collection and sharing of data, innovative investments and facilitation of business collaborations.

Involvement of various departments and parties (private) are very much required to build on circular economy in the agricultural sector.

CIRCULAR ECONOMY

a key role for sustainability of agriculture industry

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